Huronia District Fisheries Management Plan

Background Information Summary Report

Ontario

Ministry of Natural Resources

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Contents

		Page
List of Maps/Tables		
Metric/Imperial Conversions		ii
1.0	Introduction	i
	1.1 Purpose	1
	1.2 Fisheries Management Planning Process	2
	1.3 Detailed Fisheries Background Report	3
2.0	Background Information	3
	2.1 Perspective	3
	2.2 The Resource	3
	2.2.1 Inland Waters	3
	2.2.2 Lake Simcoe	6
	2.2.3 Georgian Bay	6
	2.3 Current and Projected Use	7
	2.3.1 Sport Fishing	7
	2.3.2 Commercial Food Fishing	7
	2.3.3 Commercial Bait Fish	14
	2.4 Resource Supply/Demand Analysis and Targets	14
	2.4 Current Management	15
3.0	Fisheries Management Problems and Issues	15
	3.1 Introduction	15
	3.2 Loss of Fish Habitat and Environmental Quality	15
	3.3 Loss of Fish Stocks	16
	3.4 Under-utilization of Fish Stocks	17
	3.5 Resource Use Conflicts	17
	3.6 Lack of Public Awareness	18
	3.7 Insufficient Scientific Knowledge	18
4.0	Optional Management Strategies and Tactics	18-34
	Questionnaire	35, 36, 37

List of Maps

Map 1	Huronia District - Regional Setting	4
Map 2	Huronia District	5
Map 3	Huronia District - Distribution of Sport Fish in District Lakes, Rivers and Streams	Pocket

List of Tables

		Page
TABLE 1:	Summary of Fisheries Resource Inventory Data - Huronia District (1986)	8
TABLE 2:	Resource Use, Capabilities and Target Testing - Sport Fishery	9
TABLE 3:	Resource Use, Capabilities and Target Testing - Commercial Fishery	10
TABLE 4:	Annual Summary of Commercial Fish Quotas (kg) By Area for Georgian Bay	11
TABLE 5:	Fisheries Management Activities 1983-1986	12, 13

Metric/Imperial Conversions

1 hectare - 2.47 acres
1 kilogram - 2.20 pounds
1 kilometre - 0.62 miles

1.0 Introduction

1.1 Purpose

Fisheries management planning is a multi-stage process to provide both long and short term direction to the Huronia fisheries management program. Direction is provided for the Huronia Fisheries Management Plan by the following:

1. Ministry of Natural Resources Goal

"To provide opportunities for outdoor recreation and resource development for the continuous social and economic benefit of the people of Ontario and to administer, protect and conserve public lands and waters".

2. Strategic Plan for Ontario Fisheries (SPOF) societal goals

a) To protect and maintain healthy aquatic environments and associated fish communities, and to rehabilitate those now degraded, in order to ensure continued supplies of fish and fishing opportunities which in part satisfy society's requirement for

(i) wholesome food
(ii) employment and income
(iii) recreational activity
(iv) high quality of the human environment

b) To create public awareness of the importance of healthy fish communities and aquatic ecosystems, and to engender a harmonious pattern of uses of fisheries resources and the terrestrial and aquatic ecosystems upon which they depend.

3. District Land Use Guideline Objectives (DLUG)

a) General - The objective for fisheries management in southern Ontario is to provide opportunities for recreation and economic benefits, consistent with the maintenance of healthy fish communities.

b) Sport Fishery - to meet demand within the limits of a wisely managed and rehabilitated resource

c) Bait Fishery - to maintain the current production

d) Provincial Rare and Endangered Species - to prevent the extinction of any native species

4. Lake Huron Strategic Fisheries Management Plan

a) Benefit Objective - provide opportunities for recreational and economic benefits consistent with the maintenance of healthy fish communities including: meeting the demand for sport fishing within the limits of a wisely managed and rehabilitated resource; and, maintaining a viable commercial fishing industry.

b) Fish Community Objective - restore balanced fish communities capable of self-maintenance which provide high valued fishing opportunities and fish products

c) Environmental Objective - provide an environment in the lake and its tributaries which can support self-maintaining populations of desired and wholesome fish species.

5. Lake Simcoe Fisheries Management Plan

Goal statement - Restoration of the water quality of Lake Simcoe to a level which will support a healthy coldwater fish community dominated by self reproducing native species

1.2 Fisheries Management Planning Process

There are six major steps in the Fisheries Management Planning process.

The initial step is preparation of the "Terms of Reference". This document defines and outlines the planning process by providing details and scheduling for the five subsequent steps. Terms of Reference were completed in August, 1986 and are available at Huronia District Office.

The second step is the identification of objectives and targets. Fisheries objectives and targets are those identified in the District Land Use Guidelines.

The third and fourth steps involve compiling and analyzing all available fisheries data and related information and preparing background information documents. The comprehensive report "Fisheries Background Information - Huronia District" contains fisheries inventory and use data as well as an assessment of problems and issues and a listing of the strategies and tactics which could be used to deal with them. This document which you are reading, the "Background Information Summary Report", presents a brief overview of the fisheries resource, the current and projected use as well as the listing of problems and issues together with the optional management strategies and tactics. Public review of this document will occur during July, 1987.

Preparation of a draft of the Fisheries Management Plan is the fifth step. Preferred management strategies and tactics identified in the previous stage will be outlined in the context of a draft plan which will receive both public and internal review before proceeding.

The sixth step, development of the final Fisheries Management Plan is scheduled for completion later in 1987. It will identify major issues or concerns received after public review of the draft document. Further, this document will receive additional internal review and input. Final approval will come from the District Manager and the Regional Director.

1.3 Detailed Fisheries Background Report

The detailed background information report is available for review at the Huronia District Office. A summary of the background report is presented in this document.

2.0 Background Information

2.1 Perspective

Huronia District is one of five administrative districts in the Central Region (Map 1). There are 48 municipalities within the district which contains Simcoe and Dufferin Counties (except East Luther Township) and a portion of the District Municipality of Muskoka (Map 2). The district's population in 1982 was approximately 256,000. The land area is 628,000 ha and the water area is 225,000 ha for a total area of 853,000 ha. Huronia is bordered by seven districts from three regions.

The Ministry of Natural Resources administers approximately 51,000 ha of Crown land or 8.1% of the district's land area.

Two Indian reserves occupy 6,400 ha of the district. The reserves are located in the Township of Rama and on Christian Island and are occupied by the Rama and Beausoleil Bands respectively.

There are 55 inland lakes 10 ha or greater in size for a total of 15,646 ha. There are also 55 coldwater rivers and streams with an area of 922 ha and total length of 1,650 km. The five warmwater rivers and streams provide an additional 1,300 ha of area.

The bedrock geology of the district is comprised of the exposed or thinly covered Precambrian granites and gneisses in the northeast and the lightly to deeply buried limestones and shales in the remainder of the district.

2.2 The Resource

2.2.1 Inland Waters

There are no coldwater lakes in the Huronia District. There are, however, 55 warmwater lakes, greater than 10 ha in size, and about 16,000 ha in total area (Table 1). The three largest lakes, Couchiching, Gloucester Pool and Sparrow make up 63 percent of the total surface area of all warmwater lakes. Lakes on the Precambrian Shield represent about 60 percent of the total number of district lakes. The total potential annual yield of fish from inland waters is 140,320 kg, divided between warmwater lakes - 93,500 kg, coldwater rivers and streams 6,900 kg and warmwater rivers and streams - 39,900 kg (not including baitfish).

Map 1

HURONIA DISTRICT

REGIONAL SETTING

10 0 10 30 50mi
10 0 10 20 30 40km

N

LEGEND

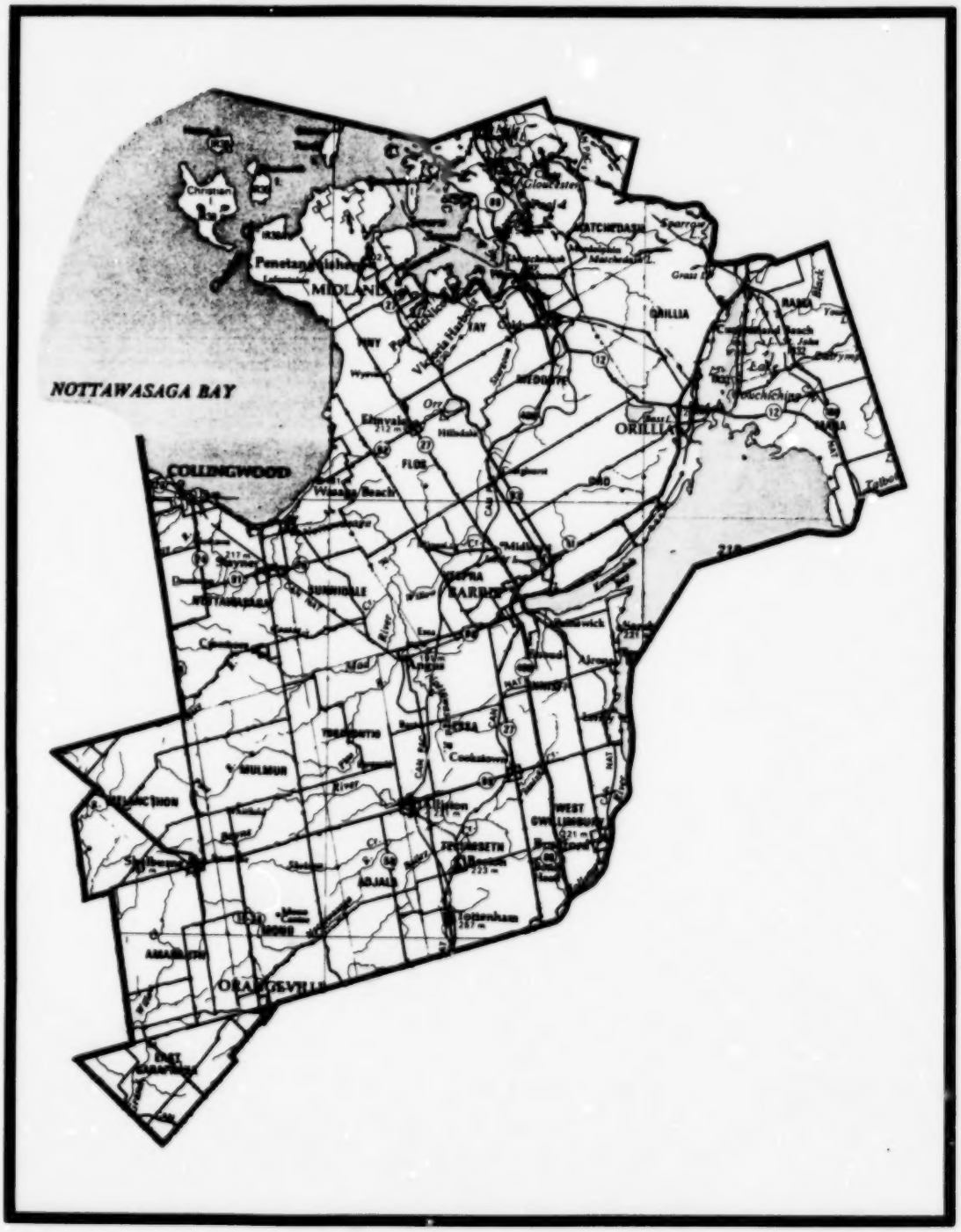
MINISTRY of NATURAL RESOURCES REGIONAL BOUNDARY

MINISTRY of NATURAL RESOURCES DISTRICT BOUNDARY

HURONIA DISTRICT

Map 2

HURONIA DISTRICT



The existing sport fish populations are the result of both natural distribution and extensive stocking programs. Largemouth bass and yellow perch are common throughout the district and are the only sport species in many of the shield lakes. Smallmouth bass, walleye and northern pike are more common in larger lakes while muskellunge are found only in Long and Morrison Lakes and in the lakes of the Trent Severn system.

In many of the lakes with low numbers of sport species, the "other" component of the fisheries potential is higher than that for all sport species. Some of this potential is likely utilized by the sport species present, however, the proportions are not known at this time.

There are almost 1,600 km of coldwater streams totalling 922 ha. These produce 6,915 kg of harvestable trout annually. Brook trout are found in many headwater areas. Resident brown trout populations are found in the mid-reaches of many rivers. Rainbow trout spend most of their adult lives in Georgian Bay but juveniles remain in nursery streams for two to three years. Recently, Pacific salmon spawning runs have begun in many streams and rivers flowing into Georgian Bay.

There are five very productive warmwater rivers in Huronia producing about 30 percent of the inland water fish yield. The lower Nottawasaga and Severn Rivers provide most of the potential and each is populated by a diverse fish community.

The production of baitfish from district waters is not well understood. The estimated potential yield from inland waters, including rivers, streams and lakes, but excluding Lake Simcoe is 72,000 kg/yr or 1,150,000 doz/yr.

2.2.2 Lake Simcoe

Lake Simcoe is the seventh largest inland lake in Ontario with a total surface area of 72,500 ha. Huronia and Maple Districts jointly manage the lake with 50 percent of the surface area in each district. Management is coordinated by the Lake Simcoe Fisheries Management Committee. For planning purposes, it is assumed that half of the lake's fish production is from Huronia waters. This area has potential to produce 161,000 kg of sport fish per year. The major sport fish are lake trout, whitefish, lake herring, walleye, northern pike, muskellunge, large and smallmouth bass and yellow perch. The abundance of each, however, has changed through the years in response to a variety of stresses. For example, the coldwater species; lake trout, whitefish and lake herring have decreased in number, while warmwater species; yellow perch and smallmouth bass have increased. The Huronia District portion of Lake Simcoe has the potential to produce about 20,000 kg or 320,000 dozen baitfish per year.

2.2.3 Georgian Bay

Georgian Bay is the second largest of the three Lake Huron basins. Huronia is responsible for managing about 160,800 ha of the Bay

including two commercial fish quota areas - GB 09 and GB 11. Management direction is provided by the Lake Huron Fisheries Management Plan and is coordinated by the Georgian Bay Subcommittee and the Lake Huron Fisheries Management Committee. Huronia waters have a potential fish yield of 363,000 kg/yr. or about 50 percent of the potential yield for the entire district. The sport fishery can be divided by the Tiny Peninsula. To the west it includes lake trout backcross, rainbow trout and a small lake whitefish population, and to the east it includes walleye, northern pike, black crappie and smallmouth bass.

As with Lake Simcoe, some species populations have varied with time. Lake trout have become extinct and fishery managers are attempting to rehabilitate their vacated habitats by stocking lake trout backcross (3/4 lake trout, 1/4 brook trout). The walleye in Severn Sound have also declined in recent years while black crappie populations have exploded. Georgian Bay also has the potential to produce 80,000 kg or 1,300,000 dozen baitfish annually.

Georgian Bay supports the only commercial food fishery in Huronia. The main species caught are lake whitefish and chub (deepwater ciscoe). As noted earlier, District waters are divided into two quota management areas. There are five licenced fisheries operating on the Bay. The combined harvest quota for all quota species for these licences is 98,287 kg.

2.3 Current and Projected Use

2.3.1 Sport Fishing

Table 2 summarizes the current use in terms of angler days (one angler day equals four hours of angling) and harvest (kg) for sport fish species. It is estimated that anglers currently expend 466,000 angler days and harvest approximately 151,500 kg of fish per year.

All species assemblages except herring are currently being harvested well within the biologically allowable yield when averaged across the district. However, in specific locations there are shortages of desired species. Anglers now spend 189,300 angler days fishing for the trout species group, followed by bass (68,400) and pike (61,900). All others are fished at a lower intensity.

Use and harvest of the fishery is expected to increase 15 percent by the year 2000, to about 535,900 angler days and harvest to approximately 174,000 kg of fish. However, this demand is lower than the estimated potential of 1,623,000 days and 550,000 kg allowable yield.

2.3.2 Commercial Food Fishing

In 1985, the reported harvest by five commercial fishermen was 54,240 kg (Table 3). Whitefish accounted for 66 percent of that total followed by chub, lake trout backcross, perch and walleye.

TABLE 1

Summary of Fisheries Resource Inventory Data - Huronia District (1986)

WATER	NO.	TOTAL AREA (ha)	TOTAL ESTIMATED POTENTIAL YIELD kg/ha/yr	kg/yr)
Surveyed Warmwater Lakes	50	13439	6.8	92006
Unsurveyed Warmwater Lakes	5	207	7.3	1508
Coldwater Rivers & Streams	55	922	7.5	6915
Warmwater Rivers & Stream	5	1330	30.0	39891
TOTAL INLAND WATERS		15898	8.8	140320
GEORGIAN BAY		160800	2.3	362965
LAKE SIMCOE*		36250	4.4	160952
GRAND TOTAL		212948	3.1	664237

* Values for Lake Simcoe taken from Lake Simcoe Background Report, 1986, and divided by 2 to approximate contribution to Huronia District

TABLE 2: RESOURCE USE, CAPABILITIES AND TARGET TESTING - SPORTS FISHERY

Species Assemblage*	Current Use kg	Current Use Angler Days	Projected Use kg	Projected Use Angler Days	DLUG Target kg	DLUG Target Angler Days	Allowable Yield kg	Allowable Yield Angler Days	Interim Refined Target kg	Interim Refined Target Angler Days
Trout	37900	189300	43500	217700	-	-	136600	682900	43500	217700
Whitefish	7300	36300	8300	41700	-	-	31600	157800	8300	41700
Herring	9300	46500	10700	53500	-	-	6600	33000	6600	33000
Walleye	17200	34400	19800	39600	-	-	29900	59800	19800	39600
Pike	30900	61900	35600	71100	-	-	75300	150700	35600	71100
Perch	12600	25100	14400	28900	-	-	66700	133300	14400	28900
Bass	34200	68400	39300	78600	-	-	87900	175700	39300	78600
Other	2100	4200	2400	4800	-	-	115000	230100	2400	4800
Total	151500	466100	174000	535900	324000	2340000	549600	1623300	169900	515400

* Similar species are grouped into assemblages for analysis and descriptive purposes. They are as follows.

Trout - lake trout, lake trout backcross, brook trout, rainbow trout, chinook salmon, coho salmon, pink salmon
Whitefish - lake whitefish, round whitefish
Herring - deepwater cisco, lake herring
Walleye - walleye
Pike - northern pike, muskellunge
Perch - yellow perch
Bass - largemouth bass, smallmouth bass, black crappie
Other - may include other sport species not listed or additional yield of listed species

TABLE 3: RESOURCE USE, CAPABILITIES AND TARGET TESTING - COMMERCIAL FISHERY

Baitfish (1985)	Current Use kg	Current Use doz.	Projected Use kg	Projected Use doz.	DLUG Target kg	DLUG Target doz.	Allowable Yield kg	Allowable Yield doz.	Interim Refined Target kg	Interim Refined Target doz.
Lake Simcoe *	19910	318568**	28587	457392	16614	265824	19910	318568	19910	318568
Rest of District	48886	782174	56219	899504	15625	250000	152081	2433296	56219	899504
Total	68796	1100742	84806	1356896	32239	515824	171991	2751864	76129	1218072
Food Fish (1985)										
Whitefish	36105		60483		-		60483		60483	
Chub	8950		17318		-		17318		17318	
Yellow Perch	1681		11577		-		11577		11577	
Walleye	1573		2589		-		2589		2589	
Lake Trout Backcross	5340		6338		-		6338		6338	
Other	591		591		-		591		591	
Total	54240		98896		47000		98896		98896	

* Values for Lake Simcoe taken from Lake Simcoe Background Report, 1986, and divided by 2 to approximate contribution to Huronia District

** 1 kg baitfish = 16 doz. baitfish

TABLE 4: ANNUAL SUMMARY OF COMMERCIAL FISH QUOTAS (KG) BY AREA FOR GEORGIAN BAY

Quota Area	Year	Whitefish	Chub	Yellow Perch	Walleye	Lake Trout Backcross	N. Pike	Channel Catfish	Sturgeon	Pink Salmon	Carp
GB-09	1984	13971	8165	4672	1769	1401	455	no limit	271	no quota	no limit
	1985	13971	10408	4672	1769	2268	455	no limit	271	no quota	no limit
	1986	19773	10408	7032	1769	1401	455	no limit	271	no quota	no limit
GB-11	1984	26989	3175	2722	820	4037	0	no limit	136	no quota	no limit
	1985	33793	3175	4545	820	4037	0	no limit	136	no quota	no limit
	1986	40710	6910	4545	820	4037	0	no limit	136	no quota	no limit

TABLE 5: FISHERIES MANAGEMENT ACTIVITIES 1983-1986

Summary Statement	Fiscal Year 1983	1984	1985	1986
Planning				
Management Planning				
# of management plans prepared	1	0	2	1
Plan Input and Review				
# of sub-divisions, marinas, etc. reviewed	40-50	40-50	40-50	40-50
# of other plans reviewed (severances)	50-60	50-60	50-60	50-60
# of site inspecitions dredging, filling, etc.	125	141	119	280
Inventory and Assessment				
District Habitat and Population Evaluation				
# index netting/tagging studies	3	2	1	1
# biomass stations	22	16	22	19
# Habitat assessments	1	1	0	1
# electrofishing surveys	9	1	1	1
Aquatic Habitat Inventory				
# and area of streams surveyed	2,(15.9ha)	0,0	1,(178.4ha)	0,0
User Surveys				
# of creel surveys	1	5	5	1
Contaminant Monitoring				
# of sites sampled for contaminants	3	2	6	2
# of contaminant samples taken	162	50	127	147
Operations				
Enforcement				
# of person days of enforcement	850	850	850	850
# of commercial fishermen and dealer contacts	100	60	40	40
# of angler contacts	5200	4500	6000	6500
# of fisheries related occurrences	600	625	600	580
# of fisheries convictions	115	125	106	100
Population Management				
# of commercial fishermen licenced for coarse fish removal	0	0	1	1
# of waterbodies stocked	2	2	3	3
# of fish stocked by species	2	2	3	4

Summary Statement	1983	1984	1985	1986
Habitat Management (CFIP and MNR)				
Length of stream banks stabilized	[.....5400 metres.....]			
Length of stream banks fenced	[.....12750 metres.....]			
Length of in-stream rehabilitation	[.....2000 metres.....]			
Public Service				
Public Involvement and Extension				
# of extension visits	90-100	90-100	90-100	90-100
# of public meetings attended or held	25-30	25-30	25-30	25-30
Provincial Fishing Areas and Other Put & Take Ponds				
#	3	3	1	0
# of rainbow trout stocked	22000	12000	10000	0
Community Fisheries Involvement Program				
# of projects completed				
- stream rehabilitation	1	4	5	5
- streamside incubators	1	1	1	2
- walleye culture	0	0	0	1

The current commercial fish harvest quotas for Georgian Bay can be seen in Table 4. In this planning process, current annual fish quotas and current harvests for species which have unlimited quotas, will be used for the projected annual harvest to the year 2000. These harvest targets are, however, subject to quota changes to reflect changes in annual fish population abundance.

2.3.3 Commercial Bait Fish

There are currently (1986) 19 baitfish harvest licences not including Lake Simcoe and 50 baitfish dealer licences issued. Harvest is estimated at 782,174 dozen from district waters and 318,568 dozen from Lake Simcoe. The District has implemented an exclusion block system to reallocate the harvest which may result in an increase in the total harvest of baitfish in the future. The basic plan includes one licencee per licence area.

2.4 Resource Supply/Demand Analysis and Targets

The overall fisheries management goal of the Ministry of Natural Resources has been defined, "to protect, rehabilitate, enhance and maintain fish communities and their environment to provide an optimum contribution of fish, fishing opportunities and associated social and economic benefits to the people of Ontario". A specific sport fishery objective is to meet the anticipated demand for fish within the limits of a wisely managed and rehabilitated resource and to prevent the extinction of native fish species.

To assist in establishing management direction the MNR has identified interim refined targets based upon projected resource demand and the capability of the resource to produce fish within the allowable yield (Table 2). Targets are consistent with the overall fisheries management goal of the Ministry of Natural Resources and the objectives identified in the Huronia Land Use Guidelines (DLUG).

The interim refined target for coldwater sport fish is 292,400 opportunities, well within the allowable yield, although some shortage of stream fishing opportunities is occurring. The future demand on the coldwater fishery can be met and additional opportunities can be generated if lake trout and whitefish are rehabilitated in Lake Simcoe and lake trout backcross are established in Georgian Bay.

The interim refined target for warmwater sport fish is 223,000 opportunities. This target is well within the allowable yield for the district but additional opportunities could be created by improving the depressed Georgian Bay walleye populations and shifting angler interest to under-utilized species.

Projected use for the commercial food fishery is not possible but for purposes of target refinement it is necessary to have some idea of future demands for that resource. In the absence of a more satisfactory method Huronia is using the highest quotas in recent years as an indication of possible future demands (Table 4).

The baitfish target is 1,218,072 dozen for the district. This is well within the allowable yield but will require increasing the harvest in Georgian Bay and inland waters only while maintaining Lake Simcoe at current use levels.

2.5 Current Management

Recent (1983 - 86) management activities are summarized in Table 5. There are no provincially owned fish hatcheries or assessment units in Huronia district. Two assessment units located in Owen Sound and Maple districts are, responsible for fisheries assessment on Georgian Bay and Lake Simcoe respectively. The district fisheries program is implemented by 20 regular staff who each spend a portion of their time on fisheries management.

3.0 Fisheries Management Problems and Issues

3.1 Introduction

An important part of the planning process is the identification of problems and issues that are restricting or could potentially restrict fish production or fishing throughout the district. Management strategies and tactics which will address solutions to the problems and issues then need to be selected and assessed to determine their effectiveness, efficiency and legal and administrative requirements and environmental impacts. Additional problems, issues, strategies and tactics may be suggested by the public during the public involvement component of the planning process.

After public consultation, the most appropriate options will be selected by the MNR planners and included in the draft plan.

3.2 Loss of Fish Habitat and Environmental Quality

Fish habitat destruction or deterioration has occurred in Huronia waters and has resulted in the loss of fish stocks and fishing recreation. Many land use practices have impacted fish habitat with land development being the most significant. Other known impacts on fish and fishing include industrial pollution contaminants, nutrient enrichment and stream and shoreline modifications.

Agricultural land use practices have led to the deterioration of many of Huronia's valuable coldwater streams and rivers. Parts of the Nottawasga River, Hog Creek, Lafontaine Creek and North River are examples of natural watercourses damaged by intensive farming practices or farm drainage. Headwater streams remain the lifeblood of coldwater rivers but deforestation, construction of ponds and dams and channelization threaten this resource.

Eutrophication of Lake Simcoe has resulted in the decline of the coldwater fishery. Nutrient loading from agricultural runoff, sewage treatment plants and urban runoff contributes to the oxygen depletion of the deep coldwater of the hypolimnion. The low oxygen levels result in

stress on the coldwater species through alteration of spawning behavior, egg and juvenile survival. Natural reproduction by whitefish and lake trout is virtually nonexistent.

Shoreline development including dredging, filling, construction of docks and other alterations has created problems on Lake Simcoe, Georgian Bay and many inland lakes.

Water levels maintained on the Severn River system may have detrimental effects on fisheries. Water level fluctuations during walleye spawning have had a negative impact on their reproduction.

Acidification may be a factor on some of the small shield lakes, but specific data are presently inadequate to permit development of sound conclusions.

Contaminants can result in the loss of fishing opportunities but the impact on the Huronia fishery is minimal. A few isolated problems have been identified (Lake St. John) and the source of these contaminants is probably industrial. Agricultural pesticides also present a problem in the major agricultural watersheds including Lake Simcoe.

Water improperly drained from gravel pits into coldwater streams raises water temperatures and contributes silt to some water coarses. Siltation has also occurred as a result of road, residential and industrial development. Stream modification such as channelization, can completely destroy stream cover.

3.3 Loss of Fish Stocks

A number of factors and/or a combination of factors could contribute to the complete decline of an individual fish species. These factors are as follows:

- loss of habitat
- over exploitation
- eutrophication
- destruction of habitat
- illegal harvest
- predation

Over exploitation occurs when the harvest exceeds the capacity of the fisheries resource to meet the demands of the resource users. The users may be commercial fishermen or anglers.

Over harvesting is most evident in small inland lakes such as Boleau where the largemouth bass population was reduced by angling pressure. These small lakes are typical precambrian shield lakes with low productivity. In other inland lakes such as Six Mile, Gloucester Pool and Woodland Lake the disappearance of lake trout is the result of deteriorating habitat coupled with over harvest.

Georgian Bay fish species which have been either lost or greatly reduced are lake trout and walleye. The main cause of lake trout decline was predation by sea lamprey and intensive harvest by commercial fishermen. Reduction of the walleye population is probably the result of a number of factors including over harvest by sports and commercial fishermen, deterioration of spawning areas and overall declines in water quality favoring other members of the fish community (eg. black crappie).

Loss or depletion of fish stocks is often a result of the introduction of exotic species such as rainbow smelt, carp and sea lamprey in Georgian Bay. Their introduction has likely contributed to the loss of lake trout and may contribute to the decline of muskellunge. The introduction of rainbow smelt is probably having a negative impact on lake trout and whitefish in Lake Simcoe also.

The building of dams, ponds, and the use of water for agricultural purposes puts great stress on stream fish populations such as brook trout throughout Huronia District. With the intense fishing pressure, these populations remain in a depleted state, eg. Boyne River brown trout; Sheldon Creek brook trout.

Illegal harvest can also threaten fish stocks, especially species that congregate sometime during the year. A strong enforcement effort is required to protect rainbow trout and walleye in the spring so that the species or various stocks from each spawning run are not lost.

3.4 Under-utilization of Fish Stocks

Huronia District has some fish species and some populations of fish that are being under-utilized. Coarse fish, such as carp, suckers, catfish and pan fish are being under-utilized throughout the district. These species are present in most streams and lakes, and in numbers to allow reasonable harvest.

Angler access to trout streams flowing through posted private property or restricted areas that limit fish viewing opportunities, are other examples of under-utilization.

Contaminants, such as those found in Lake St. John walleye may also contribute to the under-utilization of a species.

There may also be lost opportunities and under-utilization of species such as rainbow trout and largemouth bass because the number of spawning adults may be in excess to the maintenance requirement of that species.

Georgian Bay trout species may be under utilized during the summer months when the fish leave the near-shore area and migrate to deeper (unknown) waters.

3.5 Resource Use Conflicts

Competition for the fishery resource occurs mainly between commercial and sport fishermen. However, competition within these groups also is evident. Ice fishermen and summer anglers may each perceive the other group as their competition, such as on Sparrow Lake; local anglers see non-residents as competitors for fish, eg. yellow perch fishing on Lake Simcoe.

Conflicts may also occur between anglers that prefer one species over another, eg. brown trout vs. rainbow trout. Also, groups differing on the basis of fishing methods such as fly fishermen vs. hardware fishermen may perceive a conflict.

3.6 Lack of Public Awareness

Fisheries management is a complex undertaking and the public can benefit from greater knowledge and awareness of the many factors involved. The commonly held beliefs are that stocking fish or increasing enforcement activity will result in more fish in the creel. The role of habitat is less than fully understood and there is lack of appreciation for the impact other water users have upon the fishery. Often unrealistic demands are placed upon the resource, eg. a fishing trip is only successful if the angler catches his limit or a trophy.

There is a need to provide the public (anglers, developers, planners, etc.) with more information about fisheries management.

3.7 Insufficient Scientific Knowledge

Present efforts by fishery managers are often hampered by lack of information on which to base management decisions. In Huronia, there is a general need to update and expand fish population and critical habitat inventories to assist in setting management priorities. Existing fish production and allowable yield predictions need considerable refinement, however, responsibility for this lies beyond the district. There is presently no adequate method for assessing baitfish production or harvest and this situation needs immediate attention. Current use data also require updating. The recently instituted fishing licence will permit the collection of considerable data, especially regarding use of fisheries resources.

Fish populations are continually changing, desirable species generally decline while less desirable species increase. The causes are often unknown and therefore are difficult to reverse. More effort in this area is required to improve fisheries, especially for lake trout and in some areas, walleye. The impacts and mitigation of habitat altering activities are poorly understood and must be investigated if fish habitats are to be protected and present production maintained.

4.0 Optional Management Strategies and Tactics

Optional management strategies and tactics which address the problems and issues facing Huronia District fisheries are presented in this section. To better indicate where the optional strategies and tactics are to be applied the district water bodies are divided into management zones as follows:

A. Coldwater Streams

Streams either producing or capable of producing coldwater fish species, especially trout. The following streams have been identified.

Bailey Creek
Batteaux River
Baxter Creek
Bear Creek
Beeton Creek
Black Ash Creek
Black Bank Creek
Bluffs Creek
Boyne River
Brock's Beach Creek
Coates Creek
Coldwater River
Coleman Creek (Hewitt's)
Credit River
Egbert Creek
Glen Huron Creek (Leys Burns)
Hawkestone Creek
Hog Creek
Innisfil Creek
Joe Mennel's Creek
Keenansville Creek
Sturgeon River
Thunder Bay Creek
Unnamed Creek #5 (Innisfil Twp.)
Unnamed Creek #6 (Innisfil Twp.)
Unnamed Creek #11 (Innsifil Twp.)
Kid's Creek
Kruger Creek
Lafontaine Creek
Lisle Creek
Lover's Creek
Mad River
Marl Creek
Matheson Creek (Aunt Maggie's)
McMahon Creek
Monora Creek
Noisey River
North River
Nottawasaga River (upper reaches)
Ossossane Creek
Patton's Creek (Bear)
Picottes Creek
Pine River
Pretty River
Sheldon Creek
Silver Creek (Nottawasaga Township)
Silver Creek (Orillia Township)
Sucker Creek
Tioga Creek
Whiskey Creek
Willow Creek

B. Warmwater Streams

All other streams not included in "coldwater streams" and especially important in producing baitfish and/or warmwater sport species.

C. Lake Simcoe

The waters of Lake Simcoe in Huronia District.

D. Georgian Bay

The waters of Georgian Bay in Huronia District.

E. Trent-Severn Waterway

The waters of the Trent-Severn Waterway in Huronia District including Lake Couchiching, Sparrow Lake, Six Mile Lake, Gloucester Pool, MacLean Lake, Tea Lake, Little Lake and the Severn River connecting these lakes.

F. Inland Lakes

All lakes in Huronia District, 10 hectares in area or larger and not including lakes described in any previous zone. These include lakes located throughout Simcoe County and in Precambrian Shield areas north of the Severn River. The following lakes are included:

Barron	Baxter	Boleau
Bass	Bearshead	Buck
Buckshot	Burrows	Cranberry
Douglas	Dumbell	Eastern
Farlain	Gibson	Gignac
Grass	Hart (Shaw)	Horseshoe
Jerry's	Lalligan	Lamour
Little Boleau	Little (Vespra Twp.)	Little (Gravenhurst Twp.)
Lone	Long (Matchedash)	Marl
McDonald	Midland Park	Morrison
Mosquito	Mud	Narrow
Orangeville Reservoir	Orr	Otter
Penetang	Rat (Cana)	St. George
St. John	Second	Spence
Stuart	Turtle	Woodland

PROBLEM/ISSUE - LOSS OF FISH HABITAT AND ENVIRONMENTAL QUALITY

OPTIONAL MANAGEMENT STRATEGIES - (1) Protect existing habitat

TACTICS	MGMT. ZONES	COMMENTS
a. provide incentives to landowners to protect habitat	All	- one of our major strategies, essential to prevent future damage - incentives could be very costly - to protect some of our prime lake-shore marshes or headwater streams it may require nothing less than acquisition
b. liaise with agencies whose activities affect fish habitat management, eg. Ontario Ministry of Agriculture and Food (OMAF) conservation authorities, Ministry of the Environment (MOE), Department of Fisheries and Oceans (DFO) etc.	All	- intensive liaison and cooperation with different organizations/ landowners/developers will be imperative
c. enforce present legislation including Fisheries Act, Lakes and Rivers Improvement Act, etc. to prevent further degradation of habitat	All	
d. educate non-fisheries MNR personnel and the general public on the importance of protecting fish habitat (refer to Strategy #2 - Lack of public awareness)	All	most tactics are in place but require substantially more effort and commitment
e. identify and map key habitat areas requiring protection	All	- additional staff and funding necessary
f. implement a wetland policy that will protect headwater source areas and shoreline wetlands	All	- some legislation requires revision
g. provide input to the plan review process with a goal of protecting habitat	All	- protecting existing habitat will be the number one priority

TACTICS	MGMT. ZONES	COMMENTS
h. liaise with Parks Canada to develop water level control plans that minimize the negative impacts of water flow on fish production especially for walleye spawning on Trent-Severn Waterway	C,E	
i. regulate shoreline development that alters or impairs fish habitat by prohibiting construction in water during fish spawning and other critical periods or prohibiting construction entirely where required	C,D,E,F	

OPTIONAL MANAGEMENT STRATEGIES (2) Identify degraded habitat

TACTICS	MGMT. ZONES	COMMENTS
a. document existing habitat and assess condition	All	- use existing knowledge of fish habitat requirements
b. regularly monitor degraded habitat quality including physical and biological components	All	- requires expensive programs
c. account for all biological life stages of species and their associated habitat needs	All	- additional research required to identify habitat requirements of different life stages of various fish
d. continue upgrading MNR knowledge through inventory and assessment	All	
e. liaise with MOE regarding Remedial Action Plans (RAP's) water quality, contaminants, etc.	All	

OPTIONAL MANAGEMENT STRATEGIES (3) Rehabilitate degraded habitat

TACTICS	MGMT. ZONES	COMMENTS
a. expand Community Fisheries Involvement Program (CFIP) and other corporate or private enhancement efforts	All	- CFIP holds a great deal of potential and rehabilitation projects are both effective and efficient

TACTICS	MGMT. ZONES	COMMENTS
b. provide incentives to landowners, municipalities, conservation authorities and private groups to improve habitat	All	- angling licence dollars should support rehabilitation efforts
c. develop specific habitat management plans for watersheds and lakes	All	- additional habitat manipulation techniques need to be explored, ie. experimental management
d. establish priorities for habitat rehabilitation - 1) stream/river 2) lakes	All	
e. promote conversion of top draw dams to bottom draw-off to reduce instreams water temperatures	A	- landowners may resist government sponsored efforts without incentives
f. prevent the construction of barriers and promote the removal of existing barriers where appropriate	A	
g. expand MNR rehabilitation efforts	All	- large scale rehabilitation projects will require environmental assessments

OPTIONAL MANAGEMENT STRATEGIES - (4) Create new habitat

TACTICS	MGMT. ZONES	COMMENTS
a. increase MNR efforts especially in lakes	All	- creation of new habitat is sometimes difficult and may impact on other water based activities
b. encourage CFIP projects	All	- lack of knowledge re: habitat creation techniques
c. encourage research into viable projects - experimental management	All	- additional funds required

OPTIONAL MANAGEMENT STRATEGIES - (5) Improve water quality re: contaminants, acid rain, eutrophication, etc.

TACTICS	MGMT. ZONES	COMMENTS
a. liaise with other agencies eg. International Joint Commission (IJC), MOE, OMAF, DFO, etc. that can have an impact on water quality	All	- some problems eg. acid rain are international in scope and are beyond capabilities of district to solve
b. encourage public support for a clean environment	All	- public support will be vital
c. continue monitoring contaminants, acidification, etc. through present programs	F	
d. assist MOE with the development of RAP's for Collingwood Harbour and Severn Sound	D	

PROBLEM/ISSUE - LOSS OF FISH STOCKS

OPTIONAL MANAGEMENT STRATEGY - (1) Identify threatened species and stocks

TACTICS	MGMT. ZONES	COMMENTS
a. monitor district fisheries on a regular basis	All	

OPTIONAL MANAGEMENT STRATEGY - (2) Prevent extinction of resident species or genetic stocks

TACTICS	MGMT. ZONES	COMMENTS
a. establish sanctuary to protect short jaw ciscoe in Georgian Bay	All	- will require additional enforcement and funds
b. continue to enforce existing seasons and limits	All	- additional staffing and funding are necessary
c. maintain gene pools by moving fish to suitable (storage) lakes (eg. lake trout and whitefish from Lake Simcoe have been moved to suitable lakes in northern Ontario)	C	

TACTICS	MGMT. ZONES	COMMENTS
d. carry out biological assessments	All	- assessment is a costly and time consuming but necessary management activity
e. establish additional sanctuaries where necessary	All	
f. maintain genetic integrity of existing populations through careful selection of fish for stocking	All	

OPTIONAL MANAGEMENT STRATEGY - (3) Rehabilitate degraded or altered fish communities

TACTICS	MGMT. ZONES	COMMENTS
a. restock or introduce desirable species to rehabilitate fish communities, eg. lake trout and whitefish in Lake Simcoe and lake trout backcross in Georgian Bay	D,C	- difficult long term process to rehabilitate a degraded fish population and may require restricting harvest in the short term - restocking is expensive
b. improve or rebuild degraded habitat and spawning sites	All	- techniques are available but require additional funding
c. remove undesirable species, eg. sea lamprey in Georgian Bay	D,C	- it is an undertaking, requiring long term commitment
d. encourage catch and release of breeding stock		

OPTIONAL MANAGEMENT STRATEGY - (4) Prevent introduction of diseases

TACTICS	MGMT. ZONES	COMMENTS
a. continue to enforce existing legislation regarding movement of fish, eg. importation	All	- all stocked fish in public and private waters should be certified disease free and meet provincial fish health standards
b. public education re the benefits of disease free fish stocks	All	

OPTIONAL MANAGEMENT STRATEGY - (5) Prevent introduction of undesirable species

TACTICS	MGMT. ZONES	COMMENTS
a. continue to enforce existing legislation, carry out environmental assessments of "new" species	All	
b. educate public not to release unused baitfish	All	- cooperation of baitfish dealers required
c. control movement of sea lamprey by maintaining barriers	A,D	- liaise with DFO to control sea lamprey

OPTIONAL MANAGEMENT STRATEGY - (6) Prevent overexploitation

TACTICS	MGMT. ZONES	COMMENTS
a. continue to enforce existing legislation	All	- more effort is required to enforce existing legislation
b. continue to use quota management for commercial food fishery	D	- enforcement of quotas is essential to protect target species
c. control the harvest of baitfish to assure adequate forage for desirable sport and commercial species	All	- existing management of baitfish does not limit harvest
d. more restrictive limits and seasons may be required to provide additional protection	All	- not desirable for individual water bodies - may lead to more complex set of regulations
e. control access to fishery especially on Crown land in northeast by restricting the caching of boats and closing access roads	F	- controlled access will reduce fishing pressure
f. promote catch and release of mature fish especially muskellunge throughout district and some sport fish in small inland lakes	E,D,C,F	- will be effective only if practiced by large number of anglers

TACTICS	MGMT. ZONES	COMMENTS
f. restrict the use of gear to lower the harvest, eg. (i) restrict size of landing nets on coldwater streams (ii) fly fishing only restriction for certain sections of coldwater streams	A	- increase complexity of regulations
h. restrict harvest of lake herring on Lake Simcoe by establishing a season and/or creel limits	C	- will require publicity and additional enforcement

PROBLEM/ISSUE - UNDER-UTILIZATION OF FISH STOCKS OR HABITAT

OPTIONAL MANAGEMENT STRATEGIES - (1) Encourage utilization of coarse fish, eg. suckers, carp, smelt

TACTICS	MGMT. ZONE	COMMENTS
a. increase public awareness	All	- often difficult to implement, requires change in public attitudes
b. encourage derbies using coarse species	C,D,F	- cost effective, especially when sponsored by public
c. encourage use of coarse fish as an alternative to sport species	All	- utilize Fisheries Industrial Development grants, outside experts, etc.
d. encourage development of markets for underutilized commercial species	A	

OPTIONAL MANAGEMENT STRATEGIES - (2) Identify underutilized species, stocks and habitat

TACTICS	MGMT. ZONES	COMMENTS
a. creel surveys to identify underutilized species and angler preferences	All	- additional funds required. Technology is currently in place
b. update lake and stream surveys	All	- inventories must be current to make proper management decisions

OPTIONAL MANAGEMENT STRATEGIES - (3) Encourage access

TACTICS	MGMT. ZONES	COMMENTS
a. develop access where required especially along coldwater streams and the shorelines of Lake Simcoe and Georgian Bay	All	- may require additional funds
b. extension incentives to landowners to encourage access to private lands/waters	A,B	- could develop landowner agreements and tax incentives
c. work with municipalities, to develop access for fishermen especially on Georgian Bay and Lake Simcoe	All	- development of special needs, such as parking and garbage containers would encourage use of additional areas
d. acquisition of property for access purposes	All	- may require additional funds and management capability

OPTIONAL MANAGEMENT STRATEGIES - (4) Utilize sport species to maximum benefit

TACTICS	MGMT. ZONE	COMMENTS
a. extend seasons, eg. (i) rainbow trout in coldwater streams; consider opening season earlier than third Sat. in April (ii) bass in all waters; extend season to March 31 from Nov. 30	A,C,D,E,F	- some species/stocks may be able to support additional use by season extensions
b. increase fishing opportunities without increasing harvest by encouraging fly fishing, catch & release, barbless hooks, etc.	A,C,D,E,F	- innovative and experimental management should be conducted and measured to optimize use and meet demands of all users
c. partitioning fish and habitat, ie. allow all year fishing for rainbow trout in waters other than spawning areas, especially in the Nottawasaga River north of Angus, the Sturgeon and Coldwater Rivers	A	- would protect spawning adults and allow fishing opportunities
d. investigate removal or altering the sanctuary at Tug Channel, Port Severn to allow increase in rainbow trout fishing opportunities		- would be socially acceptable to most fishery users and cost would be minimal to employ
e. remove sanctuary on Six Mile Lake		- sanctuary does not protect fish as originally intended

OPTIONAL MANAGEMENT STRATEGIES - (5) Maximize utilization of all fish habitat

TACTICS	MGMT. ZONES	COMMENTS
a. construct fishways and remove barriers for migratory trout species where appropriate	A	- special funds required
b. stock desirable species (eg. largemouth bass) in under-utilized habitat eg. Orangeville Reservoir, Big Gully, Douglas, Narrow and Stuart Lakes	All	- environmental assessment may be required
c. investigate suitability of Mad River for Brown trout capability		- field studies being conducted during 1987
d. reduce licence fees for private fishing preserve	All	- some loss of funds for treasury

PROBLEM/ISSUE - RESOURCE CONFLICTS

OPTIONAL MANAGEMENT STRATEGIES - (1) Promote understanding among user groups

TACTICS	MGMT. ZONES	COMMENTS
a. educate public about role of commercial fishing in fisheries management	D	- much misunderstanding now exists. Brochures pamphlets, etc. would help educate
b. encourage constructive interaction between users	All	- meetings between user groups will promote appreciation of different views
c. negotiate Indian fishing agreements	All	- an essential tactic necessary before allocation to other users can be finalized
d. determine if problems are real or perceived	All	- existing data base may be insufficient to determine basis of conflicts

OPTIONAL MANAGEMENT STRATEGIES - (2) Monitor and allocate fish resources

TACTICS	MGMT. ZONES	COMMENTS
a. assess needs of users and allocate resources based on allowable yields to meet demands	All	- resource allocations must be fair to all users and based on sound biological and social information

PROBLEM/ISSUE - LACK OF PUBLIC AWARENESS/UNREALISTIC DEMANDS ON THE FISHERY

OPTIONS MANAGEMENT STRATEGIES - (1) Create an informed public the complexities of fisheries management

TACTICS	MGMT. ZONES	COMMENTS
a. produce and distribute literature about fish management in the form of fact sheets, pamphlets, etc.	All	- knowledge about fisheries management will lead to support and co-operation from the public for fisheries management programs
b. prepare and present fisheries management audio-visual programs to game and fish clubs, citizens groups, municipal councils, engineering groups, etc.	All	- some of the tactics listed are presently being conducted but more effort is required
c. contact contractors, developers, etc. regularly to advise about legalities and implications on fisheries of work in or near the water	All	- additional funds will be needed to prepare and produce information
d. assist and encourage MNR Park's visitor services staff to develop fisheries management programs for presentation to Park visitors	All	- advising contractors, shoreline property owners, etc. of fish habitat concerns will save vital habitat, staff time, money and public aggravation by preventing problems
e. encourage CFIP participants to learn about fisheries management through their projects and by MNR providing additional information	All	
f. promote fish viewing throughout the district especially at major walleye spawning areas such as Port Severn and for rainbow trout at fishways such as Nicolston's Dam and Earl Rowe Provincial Park	A,C,D	- this will help public understand fish requirements and will allow MNR to provide additional information regarding fish management

OPTIONAL MANAGEMENT STRATEGIES - (2) Encourage public participation in district fisheries management

TACTICS	MGMT. ZONES	COMMENTS
a. form district committee of various users and MNR staff to address fisheries management problems and assist with information transfer	All	- participation in various aspects of fisheries management will give users a better understanding of fisheries programs and help foster a sense of "partners in conservation" between users and manager
b. encourage CFIP projects that involve groups and are designed to improve fisheries resources and increase the understanding of management issues by the public	All	
c. encourage responsible, trained Deputy Conservation Officers to assist with fisheries enforcement during peak periods	All	
d. encourage the public to provide information regarding fisheries enforcement issues such as the Report a Poacher (RAP) program and potential fisheries habitat destruction offences	All	
e. promote family fishing by stocking catchable rainbow trout at the Pine River Provincial Fishery Area	All	- a positive introduction to fishing will ensure future interest in fisheries and fisheries management

PROBLEM/ISSUE - INADEQUATE SCIENTIFIC AND TECHNICAL KNOWLEDGE

OPTIONAL MANAGEMENT STRATEGIES - (1) Identify and priorize required fisheries information

TACTICS	MGMT. ZONES	COMMENTS
a. review fisheries plan background document to determine areas of deficiency	All	- acquisition of fisheries knowledge is an ongoing and continuing process
b. develop projects in annual work plan based upon identified and priorized fisheries needs	All	- funds will always be limited, thus it is imperative to priorize information needs

OPTIONAL MANAGEMENT STRATEGIES - (2) Encourage experimental management and fisheries research

TACTICS	MGMT. ZONES	COMMENTS
a. identify needs for consideration by MNR Fisheries Branch and MNR Fisheries Research	All	- additional funds required to support experimental management
b. contract outside researchers such as Universities and graduate students to meet district needs	All	- combining efforts with research and assessment units will be beneficial to both the district and the units
c. include research and experimental management projects in the annual district work plan	All	
d. work with Lake Huron and Lake Simcoe Assessment units on projects of district interest	C,D	

OPTIONAL MANAGEMENT STRATEGIES - (3) Update and refine user surveys at a district level

TACTICS	MGMT. ZONES	COMMENTS
a. encourage a Provincial Angler Survey	All	- the new fishing licence will enable fisheries managers to identify and contact many users and survey them. It is essential however that
b. ensure that district needs are known by MNR Fisheries Branch		

TACTICS	MGMT. ZONES	COMMENTS
c. regularly perform creel surveys on critical waterbodies		the district make its information needs known to MNR Fisheries Branch before the survey is undertaken

OPTIONAL MANAGEMENT STRATEGIES (4) Encourage transfer of existing fisheries management information

TACTICS	MGMT. ZONES	COMMENTS
a. the district will support and MNR staff will be encouraged to regularly attend professional and technical courses, conferences and seminars	All	- knowledge transfer is time consuming and requires a determined effort but is essential to cost and management efficiency
b. current literature and reports should be available in the District and reviewed regularly by staff	All	
c. staff should liaise regularly with other districts in the Central Region and neighbouring districts in other regions	All	

OPTIONAL MANAGEMENT STRATEGIES - (5) Expand assessment of fish populations in rehabilitation areas

TACTICS	MGMT. ZONES	COMMENTS
a. assess walleye populations in Georgian Bay, especially Port Severn	D	- assessment of fish populations is required to confirm success of management actions and formulate future management plans
b. assess lake trout backcross populations in Georgian Bay, especially in Nottawasaga Bay	D	
c. assess lake trout populations in Lake Simcoe	C	
d. assess whitefish populations in Lake Simcoe	A	
e. assess trout populations in district streams and rivers	A	

OPTIONAL MANAGEMENT STRATEGIES - (6) Assess effectiveness of present fisheries management

TACTICS	MGMT. ZONES	COMMENTS
a. review present fisheries management and develop assessment plan for management activities as required	All	- assessment of present management will allow for improvement of management techniques - cost effectiveness and increased efficiency should result

HURONIA DISTRICT FISHERIES MANAGEMENT PLAN

BACKGROUND INFORMATION AND MANAGEMENT OPTIONS

QUESTIONNAIRE

Having had the opportunity to review the background fisheries information, the problems and issues and management options, we request your cooperation in providing us with your comments and suggestions.

The information collected on the questionnaire will be summarized and will be taken into consideration during the preparation of the draft Fisheries Management Plan.

Your completed questionnaire should be forwarded to:

District Manager
Ministry of Natural Resources
Huronia District
Midhurst, Ontario
L0L 1X0

The following problems and issues have been identified. We would appreciate it if your would review them and indicate their importance in your opinion.

a.

	Not Important 1	2	3	4	Very Important 5
1. Loss of fish habitat and environmental quality					
2. Loss of fish stocks					
3. Under-utilization of fish stocks					
4. Resource use conflicts					
5. Lack of public awareness					
6. Insufficient scientific knowledge					

b. If, in your opinion, we missed some problems and issues, please list them below.

Problems and Issues	Not Important 1	2	3	4	Very Important 5
1.					
2.					
3.					
4.					
5.					
6.					

c. List any additional strategies and tactics that you may wish to offer.

d. Are there any strategies or tactics listed in this document unacceptable? If yes, please explain.

e. Please feel free to make any other comments or suggestions regarding this phase of the report.

f. If you wish to be notified regarding the presentation of the draft Management Plan, please provide your name and address.

PARRY SOUND

GB9

GB11

GEORGIAN BAY

MUSKOKA LAKES

GRAVENHURST

BRACEBRIDGE

MINDEN

LINDS

The Watchers

Hope Is

Georgian Bay

Giants Tomb Island

Beausoleil Island

Honey Harbour

Beckwith Island

CHRISTIAN ISLAND

Second Lake

Bignoc Lake

Farlain Lake

Penetang Lake

Penetanguishene

Severn Sound

Port Severn

GLOUCESTER POOL

Gibson R

Lane Lake

Cain

Six Mile L

Hart L

Wood Bay

Boleau

Indian Island L

Naipogh Lake

Spence Lake

Little Lake

Rat Lake

Harrison Lake

Severn River

TEA L

Buckskin Lake

Burrows Lake

Horseshoe Lake

Gerrons Lake

Otter Lake

Black L

Dumbell Lake

BLACK R

Eastern Lake

Long L

SPARROW LAKE

MATCHEDASH

North

MATCHEDASH BAY

Buck L

Grass Lake

Lake St George

Black Head R

MIDLAND BAY

Sturgeon Bay

Midland

Midland Park L

Wye L

Charles

Laligan Lake

TINY

TAY

TAY Ck

Hog

Wye R

Tiny Marsh

Nottawasaga Bay

ORR LAKE

Sturgeon River

MEDONTE

Copeland Forest

Cookstown

Pine Cove Ck

ORILLIA

Lake

Lake St John

Mud Lake

RAMA

Couchiching

MARA

Orillia

Grape Is

Goffat Island

Strawberry Island

Dalrymple Lake

Kelly L

Talbot R

LAKE SIMCOE

Bluffs Ck

Hawkestone Ck

ORO

Willow Ck

Little Lake

Barrie

KEMPENFELT BAY

FLOS

Wasaga Beach

Marl L

Nottawasaga R

River

Matheson

Marl Ck

Collingwood

Silver

Pretty R

Batteau R

Pretty

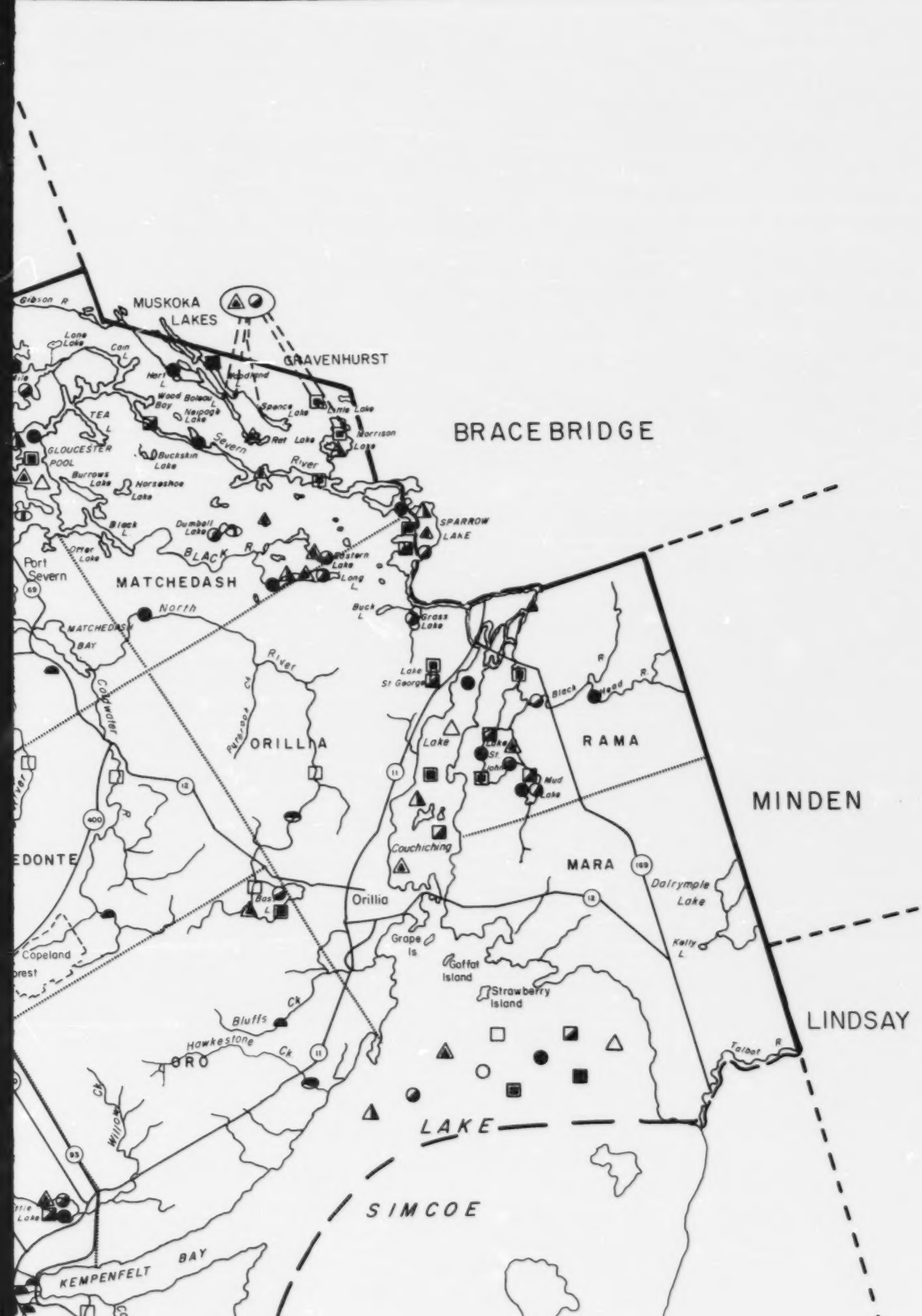
NOTTAWASAGA

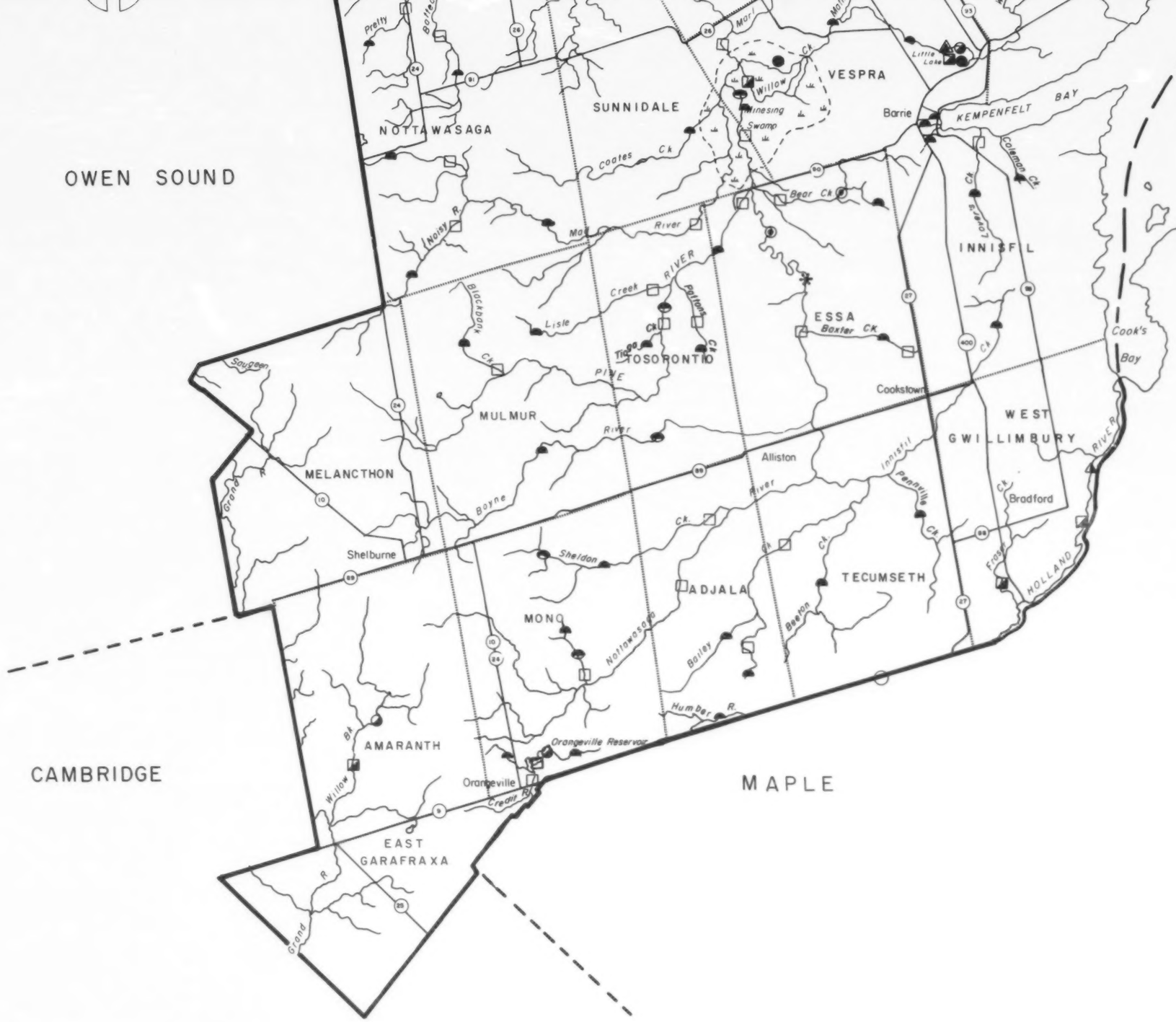
SUNNIDALE

VESPRA

Willow

Minesing Swamp


MUSKOKA LAKES
GRAVENHURST
BRACEBRIDGE
MINDEN
LINDSAY
MATCHEDASH
ORILLIA
RAMA
MARA
ORO
SIMCOE
LAKE
KEMPENFELT BAY
Port Severn
Orillia
Couchiching
Gaffat Island
Strawberry Island
Grape Is
Dairymple Lake
SPARROW LAKE
Grass Lake
Lake St George
Mud Lake
Dumbell Lake
Western Lake
Long L
Buck L
Black L
Otter Lake
Burrows Lake
Horseshoe Lake
Buckskin Lake
Norrison Lake
Spence Lake
Rat Lake
Napogo Lake
Wood Bay
Bolsover L
Hart L
Woodland
Cain L
Lone Lake
Gibson R
GLOUCESTER POOL
TEA L
Severn River
BLACK R
North MATCHEDASH BAY
Coldwater River
Hawkestone Ck
Bluffs Ck
Willow Ck
Talbot R
Kelly L
Copeland Forest
EDONTE



HURONIA DISTRICT
DISTRIBUTION OF SPORT FISH IN DISTRICT LAKES, RIVERS AND STREAM

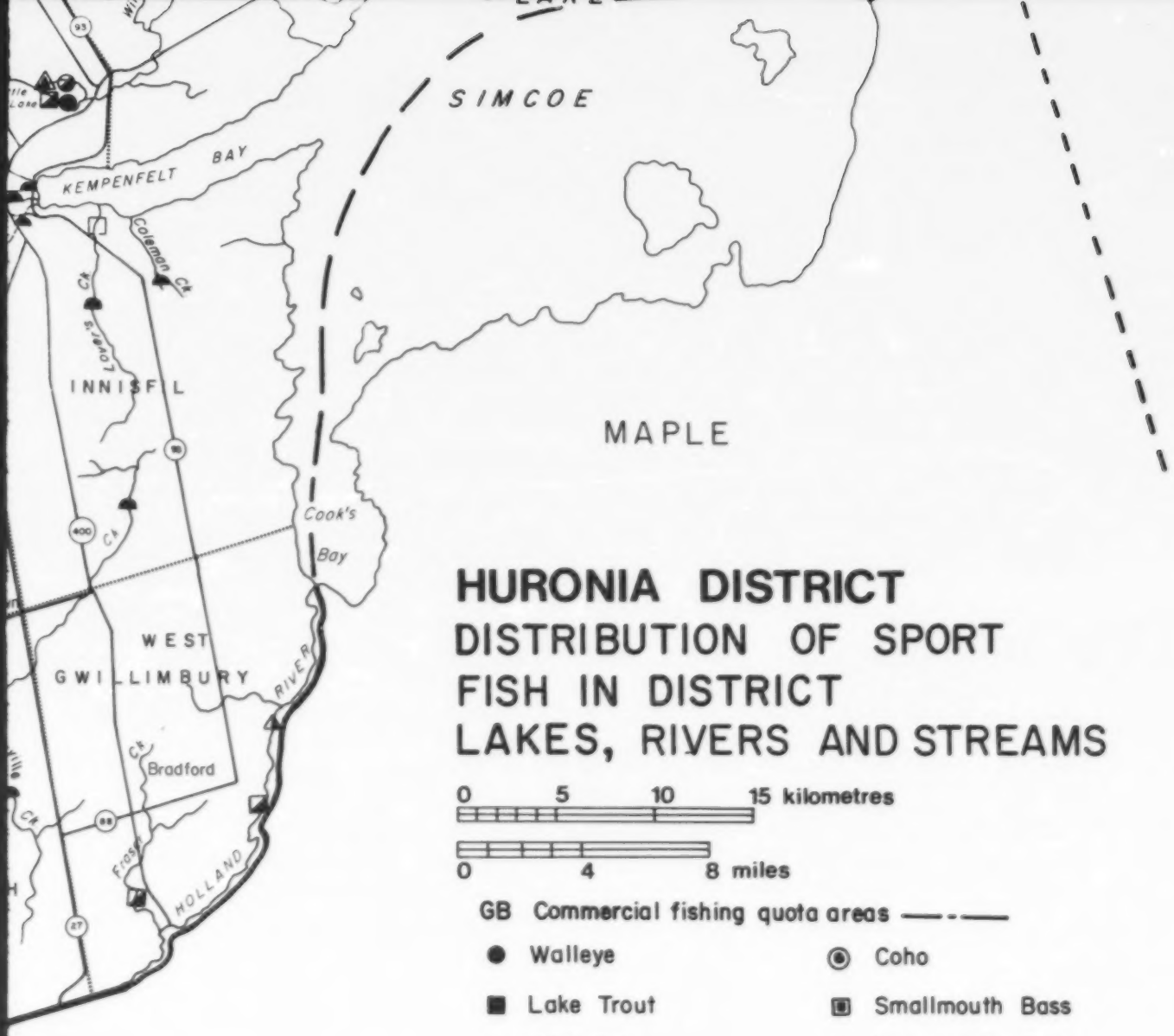
0 5 10 15 kilometres

0 4 8 miles

GB Commercial fishing quota areas

● Walleye	◉ Coho
■ Lake Trout	◙ Smallmouth Bass
△ Whitefish	◭ Largemouth Bass
○ Herring	◕ Yellow Perch
□ Rainbow Trout	◪ Northern Pike
▲ Splake	◮ Muskellunge
✳ Chinook	◍ Black Crappie
◓ Brook Trout	⬬ Brown Trout

Note : Symbols identify fish found in that particular body of water, not in that exact location.



HURONIA DISTRICT
DISTRIBUTION OF SPORT FISH IN DISTRICT LAKES, RIVERS AND STREAMS

0 5 10 15 kilometres

0 4 8 miles

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✱ Chinook	◍ Black Crappie
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